

Reflection graduation project

In this reflection I will look at the preliminary results of my research and design. It focusses on water and waste issues in Paraisópolis, São Paulo. It has become clear that the favela is divided into sub-areas, each with different issues. The north and middle form one area. All the water runs down into the little stream, which can't discharge it sufficient. This causes flooding. Other processes add to the complexity of the flooding problem: lack of formal sewerage and waste accumulation pollute the water. Where the little stream should be are now bad houses build.

In the south, the great relief causes other issues: slopes too steep to use safely, inaccessibility of houses and flooding as well.

Reflection on preliminary result of research

The research had been condensed into a map with interventions (Figure 5). I am now at the point to transform this map into a design.

The research process has taken a great leap in the last weeks (end of March '16). I found some great studies done on Paraisópolis which provided me with the maps to locate specifically where what problems are, such as informal sewerage and flood risk. Before that, the research was mainly theoretical, and hardly driven by design.

This has contributed to the planning being behind schedule. I would have liked to have been further with my design, or to have been where I am now some weeks earlier.

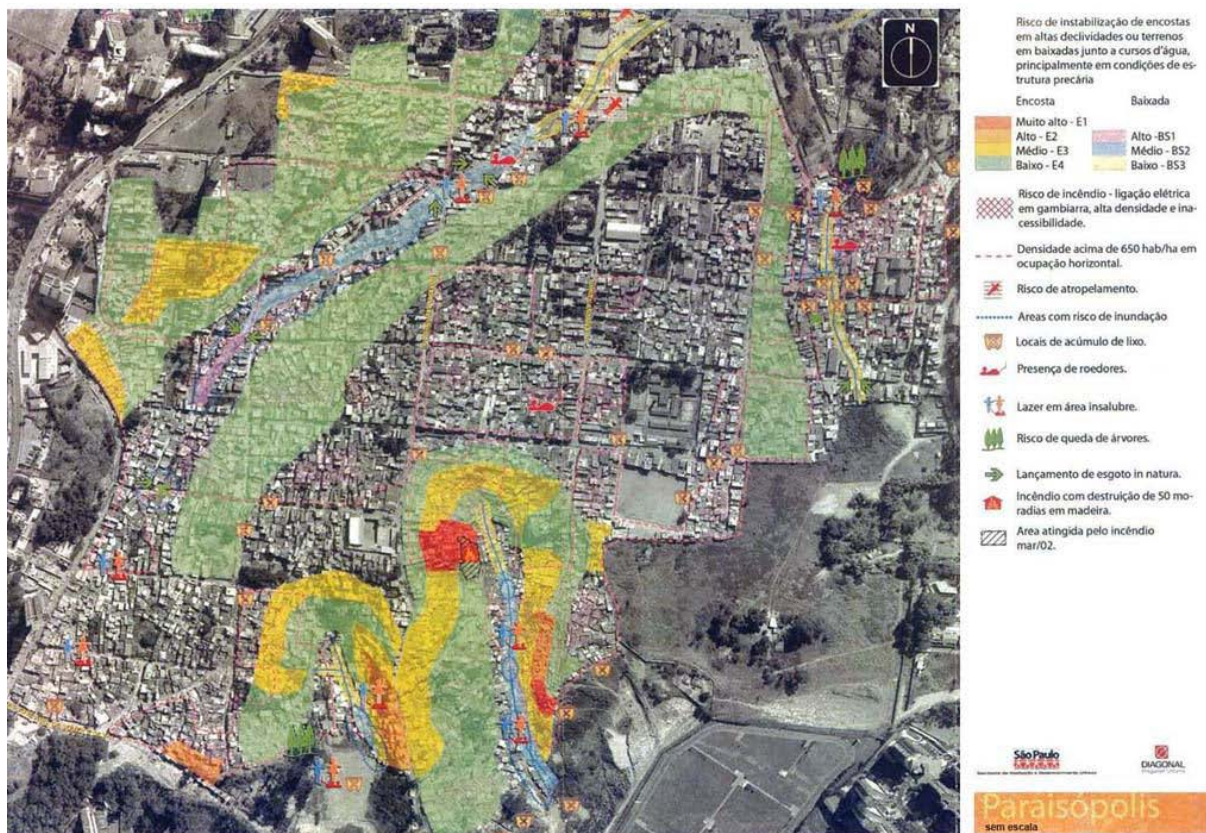


Figure 1: risk map of floods and land slide threats.



Figure 2: risk map of sewerage connection and accessibility.

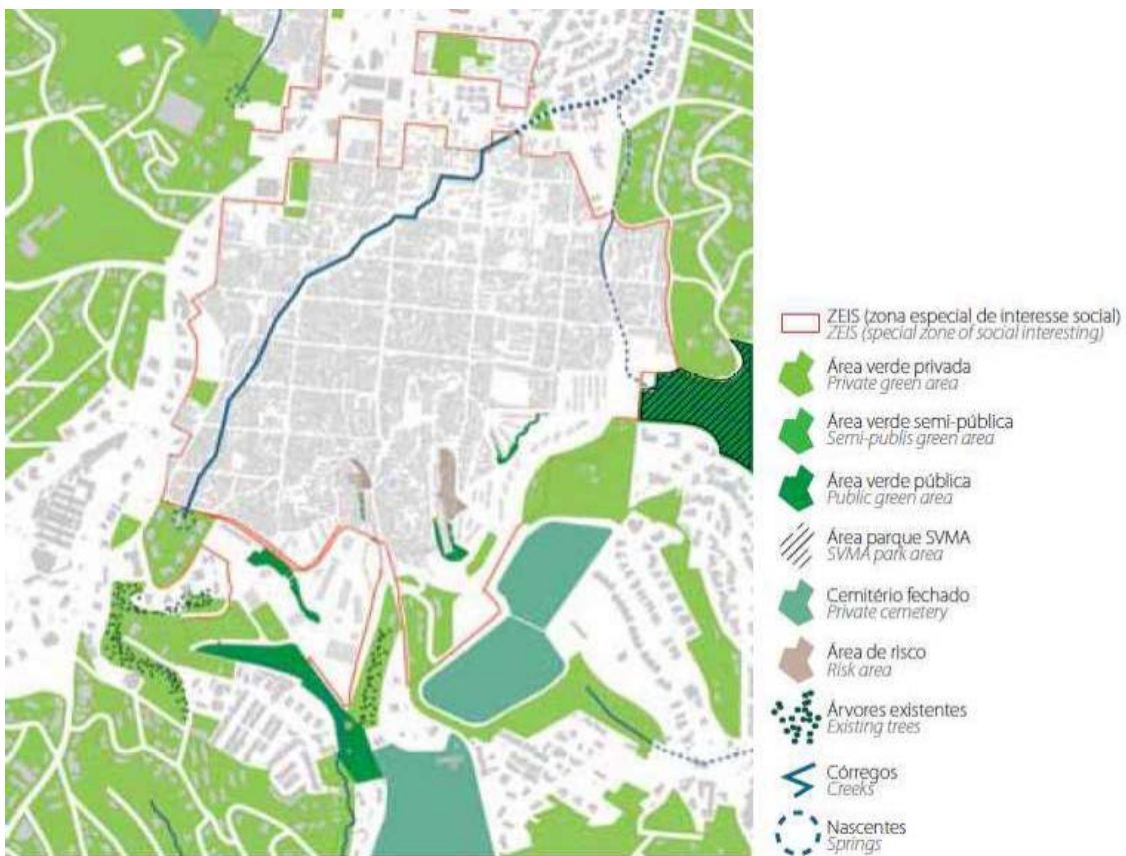


Figure 3: map of green around Paraisópolis.



Figure 4: map of built/unbuilt areas.



Figure 5: map of interventions on neighbourhood scale.

Reflection on approach

Following from the set-up of the graduation, I started with the theory of Urban Metabolism, as that is my graduation lab. I wanted it to combine with the spatial theory of Flavio Janches: having a network of public spaces of different scales in an informal neighbourhood to facilitate change. But this approach didn't work. It was confusing for me and I could not explain my project well. But worst, I could not reach the problems and so not properly design.

But one I turned the approach upside-down, it became a clear story. By working and thinking from the actual problems (issues) in Paraisópolis, the flow from issue to research to analysis to design became logical and easier. Figure 6 shows the thought process.

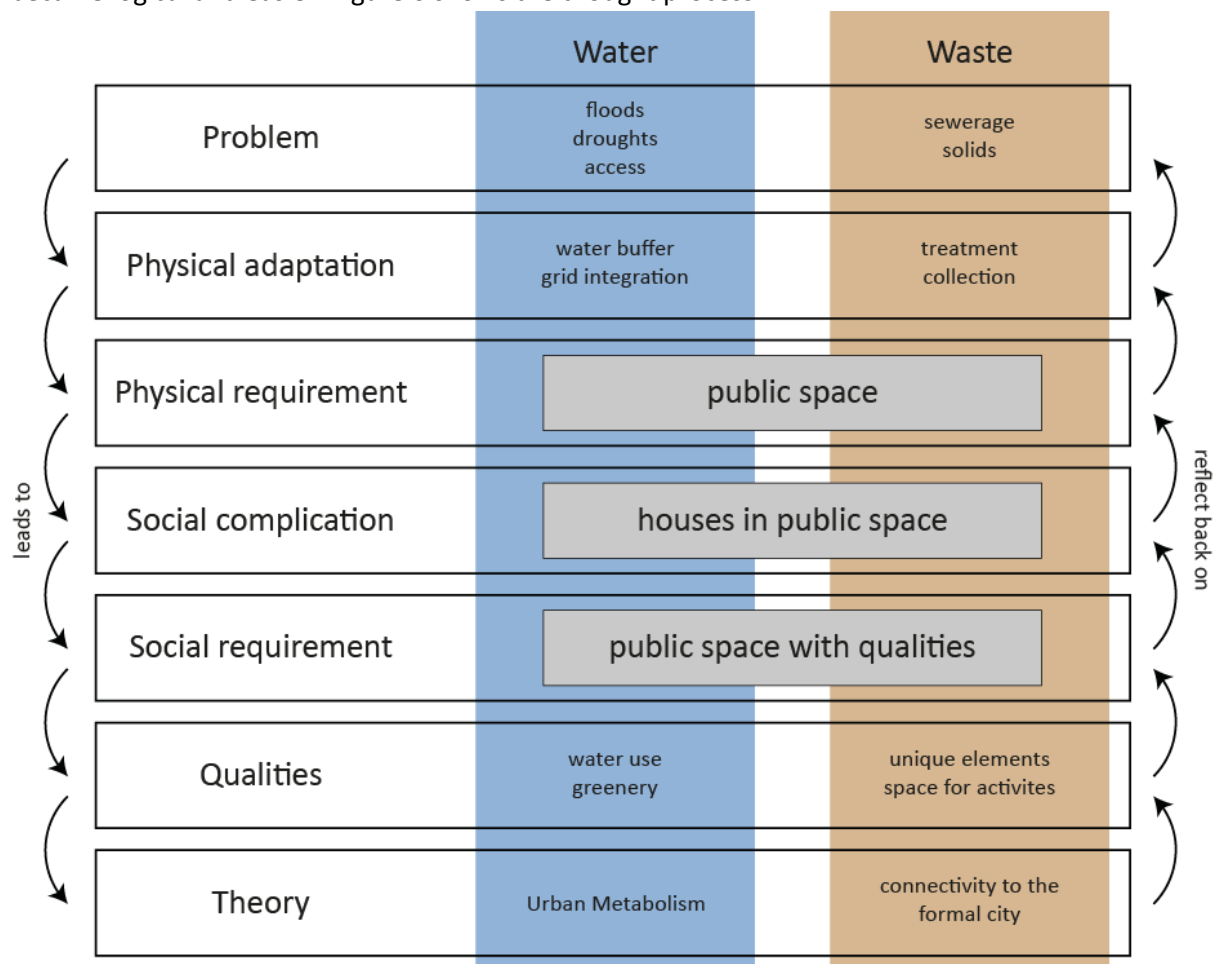


Figure 6: approach from problem to theory

I had no previous experience with research from the perspective of Urban Metabolism. It turns out it works different from how I said I would work. I came to the sub-questions by taking a key part of the main question. Each sub-question I assigned methods to answer it. But Urban Metabolism doesn't quite work like that. It is more a narrative that goes from one key part to another key part in a transitional way, not clearly defined borders between sub-questions. So in the design, I had to pay more attention to the relationship between the elements of the research question.

Looking forward to the second half of the graduation period

The main concern from here on out is design. In the design I can apply the theories and findings of the research in a coherent way. When I go deeper into the design, I expect to encounter situations that are not yet clear. And that will give questions, or require more research to reach a sufficient answers to these situations. So instead of getting to understand (through research) the location or the issues, now the catalyst of the graduation process will be design.

Figure 7 shows the map of Paraisópolis, in which all the different interventions have been mapped. These interventions followed from the theories and analysis. During the process of making this map, I continually had to go into the details of the location. For instance, when I was working on the waste collection system, I looked into where the current pick-up are locations of waste. Likewise, I have researched the installations of sewerage (or its lack thereof). So this map is the result and the catalyst of the research trough the design process.



Relationships in the graduation process

- *The relationship between research and design:* my graduation project started with research focussed on analysis of the location and the issues. Now that the project has developed, all the information gathered is coming together into a design. But to work out the design properly, I have to research specifics about the location and the issues. First, research carried the project, now design is the leading force.
- *The relationship between the theme of Urban Metabolism and water management in Paraisópolis:* addressing water management in a favela like Paraisópolis could have been done

from multiple perspectives. The perspective from Urban Metabolism offers a way to add value to the necessary interventions. And, Urban Metabolism has not yet been applied much on informal neighbourhoods. So it can bring new views on Urban Metabolism.

- *The relationship between the methodical line of approach of Urban Metabolism and the method chosen by the student for Paraisópolis:* Urban Metabolism both looks at 1) flows to maximise re-use within a system (in this case Paraisópolis) and minimise flows going in and out of a system and 2) seeks ways to combine flows to add value to interventions. My project so far has looked more at how to add value to public space (the interventions) and less at minimise flows going in and out of Paraisópolis.
- *The relationship between the project and the wider social context:* Informal neighbourhoods need more research from the perspective of Urbanism in general. There is scientific experience on how to improve the architecture and the sanitation there. But less on how to make use of the public space. This project contributes to the experience of Urbanism. But, in general, Paraisópolis is quite well studied, though. So this project might offer less new analytical information, but it is well comparable to other non-Urbanism designs already made for Paraisópolis.